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10/582,666	08/14/2006	Eiji Akiyama	8074-1162	4725

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EXAMINER
RADEMAKER, CLAIRE L

ART UNIT	PAPER NUMBER
1795	

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06/15/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,666	AKIYAMA ET AL.	
	Examiner	Art Unit	
	CLAIRE L. RADEMAKER	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 & 3--21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-12,14 and 17-21* is/are rejected.

7)☒ Claim(s) *3,13,15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendment filed on February 10, 2009. Claims 1, 4-12, 14, 17-21 are pending and are rejected for reasons of record. Claims 3, 13, & 15-16 are pending and are objected to as containing allowable subject matter but depending from rejected claims. Claim 2 is cancelled.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17 & 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 17 & 18 recite the limitation "the plurality of different fuel cartridges" in line 6 of claim 17 and in line 7 of claim 18. There is insufficient antecedent basis for this limitation in the claims.

For Examination purposes, the limitation “wherein the depth is changed based on the fuel cartridge selected from the plurality of different fuel cartridges” (claim 17) has been interpreted as meaning that the depth of the introduction part is changed by insertion of the fuel cartridge.

Similarly, for Examination purposes, the limitation “based on the concentration of the fuel contained in the fuel cartridge selected from the plurality of different fuel

cartridges" (claim 18) has been interpreted as meaning that the control unit controls the pump based on the concentration of the fuel contained in the fuel cartridge.

Claim Objections

4. Claim 18 is objected to because it contains a typographical error: the phrase "wherein control unit controls the pump" should read "wherein the control unit controls the pump". Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-12, 14, 17, & 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bullock et al. (US 2003/0082416).

With regard to claims 1, 4-12, 14, & 21, Bullock et al. discloses a fuel cell / fuel cell device (208, paragraph [0055]; Figure 12) comprising:

a mounting part (140 & 146, paragraph [0028]; Figure 3) where a fuel cartridge (132, paragraphs [0026] & [0028]; Figure 3) filled with fuel is mounted in a detachable manner (paragraphs [0026] &[0035]),

an identification part that identifies the fuel cartridge to be mounted on said mounting part (148, 150, 152, 154, 156, & 158, paragraphs [0028] & [0030]; Figure 3), wherein sad identification part includes:

a plurality of terminals (202a & 202b, paragraph [0037]; Figure 3) which are connected with the fuel cartridge selectively and electrically (paragraphs [0037] & [0028]) and can be located on the sides of the exterior surface of the fuel cartridge (paragraph [0037]),

a plurality of fitting parts (152, 154, 156, & 158, paragraphs [0028], [0033]-[0034]; Figure 3), where said fitting parts further comprise a detecting unit (200, 202a, & 202b, paragraphs [0028], [0033]-[0036]; Figure 3) that can detect whether the fitting part is fitted into a fuel cartridge or not (paragraphs [0028]& [0033]-[0036]),

selecting parts (148 & 150, paragraph [0028]; Figure 3) that make usable one fitting part to be selectively fitted into a specified cartridge among said plurality of fitting parts, and that can select one terminal connected electrically to a specified fuel cartridge from among said plurality of terminals (paragraphs [0028], [0037], & [0055]),

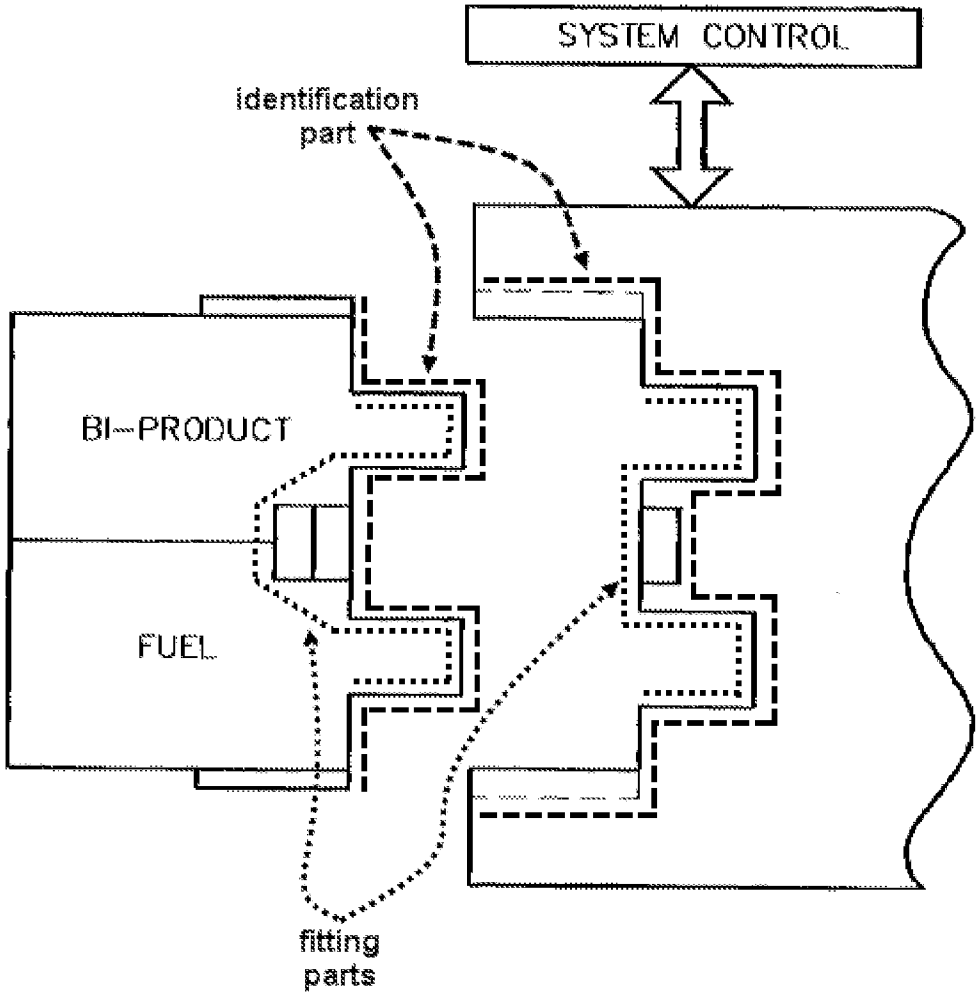
a judging part that judges the type of fuel filled in said fuel cartridge (200 & 126, paragraphs [0008] & [0039]-[0040]; Figure 3) based on the electrical connecting condition between said plurality of terminals and said fuel cartridge (paragraphs [0035]-[0036] & [0028]), and

a control unit (126, paragraphs [0025], [0035]-[0036], & [0041]; Figure 3) that controls the operation condition depending on the type of fuel judged by said judging part (paragraphs [0008], [0025], [0035]-[0036], [0039]-[0040]; Figure 7),

wherein said detecting unit can detect when the fitting part is fitted into the fuel cartridge (paragraph [0041]; Figure 7), and wherein said detecting unit can work when it detects that said terminal is electrically connected with said fuel cartridge (paragraph [0041]; Figure 7),

and wherein said fuel cartridge comprises a labeled part (204, paragraph [0044]; Figure 9) that is identified by said identification part of the fuel cell (paragraph [0044]), where said labeled part can show a filled fuel (paragraph [0044]; Figure 9).

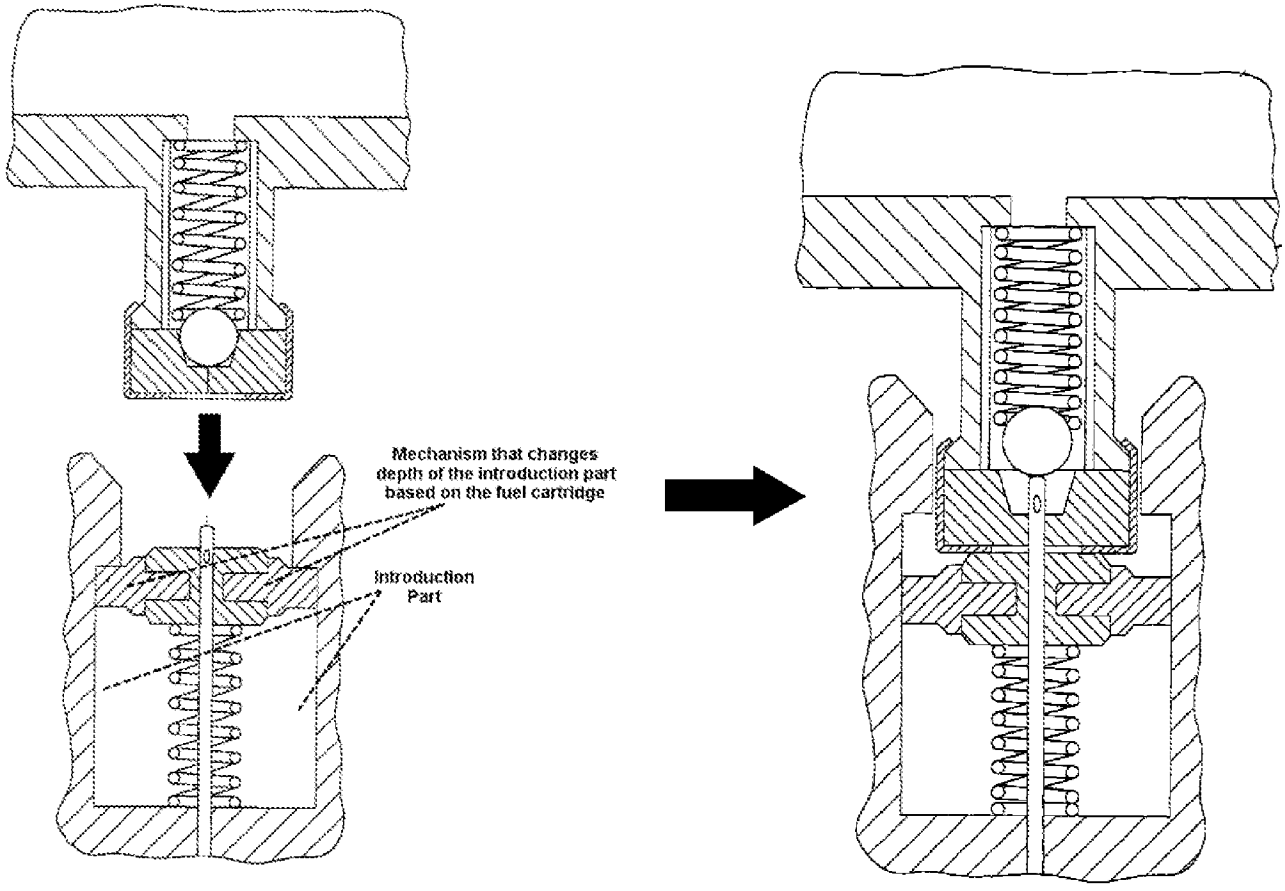
The following illustration (modified Figure 3 of Bullock et al.) is provided for clarification:


SYSTEM CONTROL
identification part
BI-PRODUCT
FUEL
fitting parts

With regard to claim 17, Bullock et al. discloses that said fuel cell fitting part includes:

An introduction part (paragraphs [0032]-[0033]; Figures 4-5); and

A mechanism that changes the depth of the introduction part (paragraphs [0032]-[0033]; Figures 4-5), wherein the depth of the introduction part is changed based on the fuel cartridge (paragraphs [0032]-[0033]; Figures 4-5). The following illustration (modified Figures 4-5 of Bullock et al.) is provided for clarification:



Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. (US 2003/0082416), as applied to claim 1 above.

The disclosure of Bullock et al. as discussed above is fully incorporated herein.

With regard to claims 19-20, Bullock et al. teaches that the identification part can comprise a plurality of connecting terminals / links (202, paragraphs [0035]-[0037]) in various arrangements (paragraphs [0036]-[0037]), but fails to teach that the fuel cell can comprise a greater number of connecting terminals than the fuel cartridge.

While Bullock et al. fails to teach that the fuel cell can comprise a greater number of connecting terminals than the fuel cartridge, one of ordinary skill in the art at the time of the invention would understand that it would obviously be advantageous to provide both the fuel cartridge and the bi-product cartridge with individual connecting terminals / links and to provide the fuel cell with multiple connecting terminals corresponding to the cartridges (i.e. such that the fuel cartridge comprises one connecting terminal / links and the fuel cell comprises two connecting terminals / links, thereby having the fuel cell comprise a greater number of connecting terminals than the fuel cartridge) in order to

make sure that the fuel cartridge and the bi-product cartridge are inserted correctly and completely so that no gas/fuel leaks.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. (US 2003/0082416), as applied to claim 9 above, and further in view of Yamauchi et al. (US 2002/0187374).

The disclosure of Bullock et al. as discussed above is fully incorporated herein.

With regard to claim 18, Bullock et al. teaches that the fuel cell includes a suitable device for creating and maintaining fluid pressure from the fuel cartridge to the fuel cell (paragraph [0028]), but fails to teach that said device can be a pump or teach the concept of controlling the pump based on the concentration of the fuel contained in the fuel cartridge.

Yamauchi et al. teaches the concept of having a pump (11, paragraphs [0106]-[0107]) that sucks fuel from a fuel cartridge (paragraphs [0106]-[0107]) and circulates the fuel (paragraphs [0106]-[0107]) be controlled by a controller (24 & 26, paragraphs [0106]-[0107]) based on the concentration of fuel contained in said fuel cartridge (paragraphs [0106]-[0107]) in order to provide the fuel cell with fuel at an optimum speed based on the concentration of the fuel, thereby optimizing the energy conversion efficiency of the fuel cell system (paragraph [0089]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add concept of having a pump suck fuel from a fuel cartridge and circulate the fuel where the pump is controlled by a controller based on the concentration of fuel contained in the fuel cartridge of Yamauchi et al. to the fuel cartridge and fuel cell of Bullock et al. in order to provide the fuel cell with fuel at an optimum speed based on the concentration of the fuel, thereby optimizing the energy conversion efficiency of the fuel cell system (paragraph [0089]).

Allowable Subject Matter

9. Claims 3, 13, & 15-16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, Bullock et al. (US 2003/0082416), does not disclose, teach, or suggest a fuel cell comprising a plurality of fitting parts corresponding to a plurality of different fuel cartridges where a selecting part makes usable one fitting part to be selectively fitted into a specified cartridge among said plurality of fitting parts.

Response to Arguments

Information Disclosure Statement

11. Applicant's arguments with regard to the objections to the Information Disclosure Statement (IDS) regarding the Notification of First Office Action from the Chinese Patent

Office for Application 2004-8003677.3, filed on February 10, 2009, have been fully considered and the Examiner's objections are withdrawn due to the Applicant's amendments and arguments.

Claim Rejections - 35 USC § 112

12. Applicant's arguments with regard to the rejections of claims 2 & 4, filed on February 10, 2009, have been fully considered and the Examiner's rejections are withdrawn due to the Applicant's amendments and arguments.

Claim Rejections - 35 USC § 102

13. Applicant's arguments with respect to claims 1-14, filed on February 10, 2009, have been considered but are moot in the view of the new ground(s) of rejection. The new grounds of rejection are necessitated by the Applicant's amendment and all arguments are directed toward the added feature of a plurality of fitting parts corresponding to a plurality of different fuel cartridges (amended claim 3).

On page 11 of the Applicant's Response, Applicants argue that the fitting parts and corresponding connection parts of the instant invention are mechanical not electrical parts (Applicant's Response, page 11).

The Examiner respectfully disagrees with the Applicant's argument that the fitting parts and corresponding connection parts of the instant invention are mechanical not

electrical parts (Applicant's Response, page 11) because Bullock et al. discloses a fuel cell / fuel cell device comprising a plurality of fitting parts (152, 154, 156, & 158, paragraphs [0028], [0033]-[0034]; Figure 3) and selecting parts (148 & 150, paragraph [0028]; Figure 3) which mechanically discriminate whether the mounted fuel cartridge is an adequate fuel cartridge or not (i.e. the fitting parts and selecting parts of Bullock et al. will prevent an undesired / inadequate cartridge from being mounted due to the structure and shape of the fitting parts and selecting parts).

Furthermore, the Examiner notes that Bullock et al. discloses an introduction part (paragraphs [0032]-[0033]; Figures 4-5) and a mechanism that changes the depth of the introduction part (paragraphs [0032]-[0033]; Figures 4-5), wherein the depth of the introduction part is changed based on the fuel cartridge (paragraphs [0032]-[0033]; Figures 4-5).

On pages 11-12 of the Applicant's Response, Applicants argue that Bullock et al. fails to disclose "a fuel cartridge having a labeled part showing a filled fuel and a fuel cell body including an identification part that identifies said labeled part of said fuel cartridge" (Applicant's Response, page 11).

The Examiner respectfully disagrees with the Applicants argument that Bullock et al. fails to disclose "a fuel cartridge having a labeled part showing a filled fuel and a fuel cell body including an identification part that identifies said labeled part of said fuel cartridge" (Applicant's Response, page 11) because Bullock et al. clearly discloses that

said fuel cartridge comprises a labeled part (204, paragraph [0044]; Figure 9) that is identified by said identification part of the fuel cell (paragraph [0044]), where said labeled part can show a filled fuel (paragraph [0044]; Figure 9). Furthermore, the Examiner notes that Bullock et al. clearly states that the level of fuel in the fuel cartridge can be determined by the fuel cell / device (paragraphs [0044]-[0045]). One of ordinary skill in the art at the time of the invention would understand that the fuel cartridge must comprise a labeled part that is identified by said identification part of the fuel cell in order for the fuel level of the fuel cartridge to be able to be read and determined by the fuel cell even when the cartridge is removed from one fuel cell and place in another fuel cell (paragraphs [0044]-[055]).

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLAIRE L. RADEMAKER whose telephone number is (571)272-9809. The examiner can normally be reached on Monday - Friday, 8:00AM - 4:30PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. L. R./
Examiner, Art Unit 1795

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795